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Gordon Research Conferences, Inc.
512 Liberty Lane

West Kingston, RI 02892 -1502

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS (ES)
U.S. Army Research Office
P.O. Box 12211
Research Triangle Park, NC 27709-2211

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The views, opinions and/or findings contained in this report are those of the author(s) and should not contrued as an official Department of the Army position, policy or decision, unless so designated by other documentation.

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a. REPORT	b. ABSTRACT	c. THIS PAGE			Deborah Jones
UU	UU	UU	UU		19b. TELEPHONE NUMBER: 336-082-6859

RPPR Final Report
as of 21-Nov-2018

Agency Code:

Proposal Number: 73147CHCF **Agreement Number: W911NF-18-1-0111**
INVESTIGATOR(S):

Name: Ph.D. Deborah J Jones
Email: Deborah.Jones@umontpellier.fr
Phone Number: 33608268598
Principal: Y

Organization: **Gordon Research Conferences, Inc.**
Address: 512 Liberty Lane, West Kingston, RI 028921502
Country: USA
DUNS Number: 075712877 EIN: 050300482
Report Date: Date Received: 30-Oct-2018
Final Report for Period Beginning 28-Mar-2018 and Ending 27-Sep-2018
Title: 2018 Fuel Cells Gordon Research Conference and Gordon Research Seminar
Begin Performance Period: 28-Mar-2018 **End Performance Period:** 27-Sep-2018
Report Term: 0-Other
Submitted By: Nancy Ryan Gray Email: grants@grc.org
Phone: (401) 360-1505
Distribution Statement: 1-Approved for public release; distribution is unlimited.

STEM Degrees: **STEM Participants:**

Major Goals: Organizing a Gordon Research Conference involves extensive communication with the research community to identify important issues at the frontiers of the field, and solicit suggestions for speakers and discussion leaders to participate in the conference. The Chair then contacts prospective participants to invite them to talk and discuss the nature of their contributions. The Chair then communicates the topics and aims of the conference through web pages, contact with relevant international professional bodies and email to members of the research community around the world to encourage applications for participation in the conference. The Chair is then responsible for assessing and accepting the applications and fielding a host of questions both concerning the technical content and practical aspects of conference participation.

Accomplishments: Exciting developments and opportunities face fuel cell research – with the launch of commercial fuel cell electric vehicles in 2014 and prospects for new applications outside of the transportation and portable power sectors. Innovations in materials, especially low-/non-precious group metal catalysts and ionomers, are beginning to shift the platinum-focused paradigm to lower-cost options. Tremendous progress in methods for characterization of structure and properties of materials and components is enabling deeper understanding of transport and kinetics. Advances in computational modeling of material structure and their transport and/or kinetic properties are guiding novel material development and complementing the results of experimental methods. These have led to new approaches for large scale cost effective manufacturing of materials and components. Many challenges exist in successful integration of aforementioned exciting developments for a low-cost, robust fuel cell technology including critical breakthroughs in hydrogen production technologies.

At this GRC, an international group of scientists and engineers from industry, academia, and national laboratories presented talks and posters that focused on cutting edge developments in fuel cell research with regards to materials, methods, modeling and manufacturing pertinent to low-temperature fuel cells. Attendees were engaged in constructive discussions and scientific exchanges that stimulated new ideas and facilitated new collaborations aimed at identifying and solving next-generation issues.

Training Opportunities: Speakers, discussion leaders, poster presenters and attendees simultaneously contributed to and benefited from the collective skills and experience shared throughout the conference. The funding provided by was invaluable to the success of the Conference.

Results Dissemination: The final program has been posted on the GRC website.

RPPR Final Report
as of 21-Nov-2018

Honors and Awards: Nothing to Report

Protocol Activity Status:

Technology Transfer: Nothing to Report

GORDON RESEARCH CONFERENCES

FINAL REPORT
Army Research Office
Fuel Cells GRC/GRS

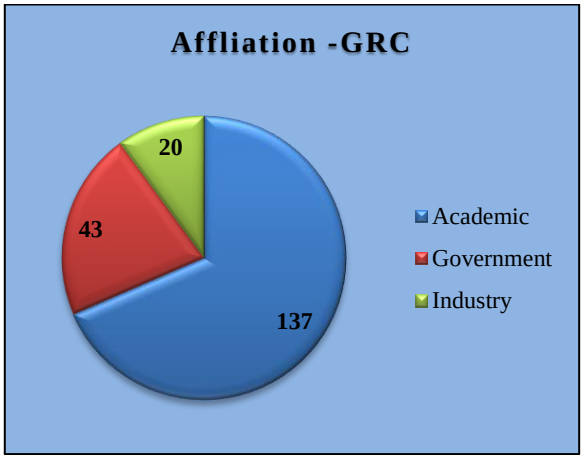
Grant Number W911NF-18-1-0111
June 24-29, 2018

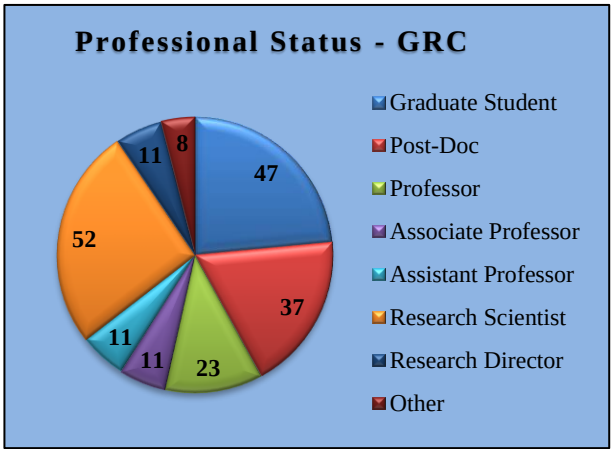
Operational Summary

The Gordon Research Conference (GRC) and Gordon Research Seminar (GRS) on Fuel Cells were held at Bryant University in Smithfield, Rhode Island from July 28-August 3, 2018. The meeting covered a variety of scientific topics and the content presented was highly rated by participants.

Conference Participants

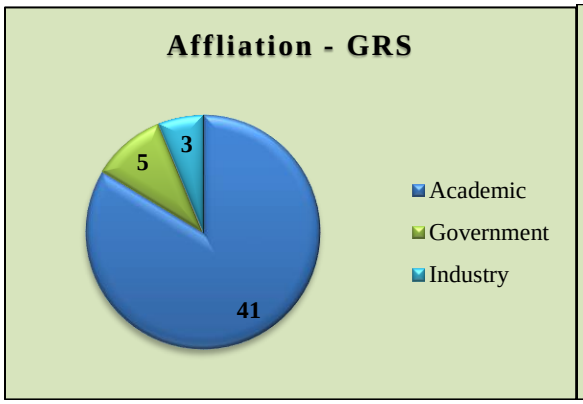
The Conference was well-attended with 200 participants. Scientists from academia represented 69% of the participants while attendees from government accounted for 21% and those from industry totaled 10%. The meeting also attracted a strong mix of young investigators and senior scientists. Students and post-docs accounted for 33% of all attendees. Approximately 23% of the participants at the 2018 meeting were women.

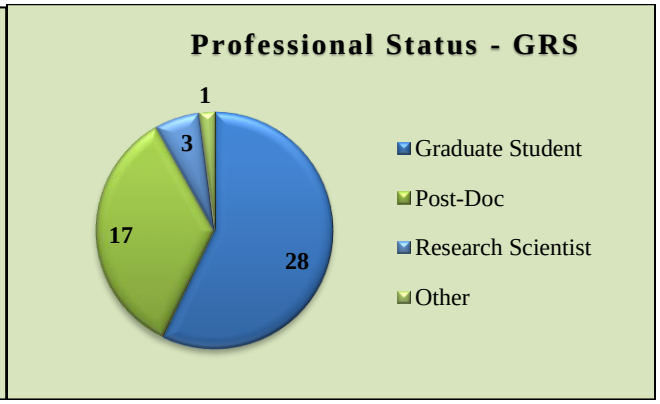




Seminar Participants

The Conference was well-attended with 49 participants. Scientists from academia represented 84% of the participants while attendees from government accounted for 10% and those from industry totaled 6%. Students and post docs combined accounted for 94% of all attendees. Approximately 31% of the participants at the 2018 seminar were women.





Conference Program

Exciting developments and opportunities face fuel cell research – with the launch of commercial fuel cell electric vehicles in 2014 and prospects for new applications outside of the transportation and portable power sectors. Innovations in **materials**, especially low-/non-precious group metal catalysts and ionomers, are beginning to shift the platinum-focused paradigm to lower-cost options. Tremendous progress in **methods** for characterization of structure and properties of materials and components is enabling deeper understanding of transport and kinetics. Advances in computational **modeling** of material structure and their transport and/or kinetic properties are guiding novel material development and complementing the results of experimental methods. These have led to new approaches for large scale cost effective **manufacturing** of materials and components. Many challenges exist in successful integration of aforementioned exciting developments for a low-cost, robust fuel cell technology including critical breakthroughs in hydrogen production technologies.

At this GRC, an international group of scientists and engineers from industry, academia, and national laboratories presented talks and posters that focused on cutting edge developments in fuel cell research with regards to *materials, methods, modeling and manufacturing* pertinent to low-temperature fuel cells. Attendees were engaged in constructive discussions and scientific exchanges that stimulated new ideas and facilitated new collaborations aimed at identifying and solving next-generation issues.

Conference Budget

Funding provided by the Army Research Office supported partial registration for 4 postdocs, 4 graduate students, 3 professors, 1 associate professor, 2 assistant professors and 2 research scientists at the GRC and 6 graduate students, 1 post doc and 1 other at the GRS.

Conference Feedback

Participants had an opportunity to provide feedback at the end of the Conference. The feedback collected from the meeting was extremely positive. Evaluations included numerous positive remarks regarding the discussions during the poster sessions, the selection of topics and speakers and the approachable and friendly atmosphere. Feedback collected from the seminar also positive remarks regarding the discussion time after each talk, valuable presentations and the networking opportunities.

GRC would like to thank the Army Research Office for its continued support of the meetings. The contributions received have been critical to the success of the conferences and are having a measurable impact in advancing the frontiers of science worldwide.

Dr. Deborah Jones, GRC Chair
CNRS - University of Montpellier

Dr. Kunal Karan, GRC Co-Chair
University of Calgary

John Lack, GRS Chair
Vanderbilt University

Tasleem Muzaffar, GRS Co-Chair
Simon Fraser University

Dr. Nancy Ryan Gray
President and Chief Executive Officer
Gordon Research Conferences

Fuel Cells

Gordon Research Conference

Energizing the Future by Innovation in Fuel Cell Materials, Methods, Modeling, and Manufacture

July 29 - August 3, 2018

Chairs Kunal Karan and Deborah J. Jones
Vice Chairs Marc Secanell and Shanna D. Knights
Bryant University
1150 Douglas Pike
Smithfield, RI, US

Conference Program

Sunday

2:00 pm - 9:00 pm	Arrival and Check-in
6:00 pm - 7:00 pm	Dinner
7:30 pm - 7:40 pm	Introductory Comments by GRC Site Staff / Welcome from the GRC Chair
7:40 pm - 9:30 pm	The Future of Sustainable Transport with Fuel Cells Discussion Leader: Shanna Knights (Ballard Power Systems, Canada)
7:40 pm - 7:45 pm	Introduction by Discussion Leader
7:45 pm - 8:05 pm	William Resende (BMW Group, Germany) "The Case for Fuel Cells for Automotive Applications and the Remaining Challenges for Widespread Commercialization"
8:05 pm - 8:10 pm	Discussion
8:10 pm - 8:30 pm	Jesse Schneider (Nikola Motor Company, USA) "The Case for HD Semi Fuel Cell Trucks and Large Scale Hydrogen Deployment"
8:30 pm - 8:35 pm	Discussion
8:35 pm - 8:55 pm	Josef Kallo (German Aerospace Center (DLR), Germany) "Update on Fuel Cell System Behaviour in High Altitude Aviation Environment"
8:55 pm - 9:00 pm	Discussion
9:00 pm - 9:20 pm	Klaus Vanska (ABB Marine & Ports, Finland) "Drivers and Requirements for Fuel Cells in Sustainable Shipping"
9:20 pm - 9:25 pm	Discussion
9:25 pm - 9:30 pm	General Discussion

Monday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Low PGM Catalysts: Shaping the Future Discussion Leader: Hubert Gasteiger (Technical University of Munich, Germany)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:55 am	Zhongwei Chen (University of Waterloo, Canada) "Engineering of PGM Electrocatalysts for Oxygen Reduction: From Bulk to Atom"
9:55 am - 10:10 am	Discussion

10:10 am - 10:30 am	Coffee Break
10:30 am - 11:15 am	Jeff Greeley (Purdue University, USA) "First Principles Studies of Electrocatalysis"
11:15 am - 11:30 am	Discussion
11:30 am - 12:15 pm	Peter Strasser (Technical University of Berlin, Germany) "Fit for the Future: Electrocatalysts Are Getting in Shape"
12:15 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
3:00 pm - 4:00 pm	Power Hour *The GRC Power Hour is an optional informal gathering open to all meeting participants. It is designed to help address the challenges women face in science and support the professional growth of women in our communities by providing an open forum for discussion and mentoring.* Organizer: **Carol Korzeniewski** (Texas Tech University, USA)
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Non-PGM Catalysts: Opportunities and Challenges Discussion Leader: Kateryna Artyushkova (University of New Mexico, USA)
7:30 pm - 7:40 pm	Introduction by Discussion Leader
7:40 pm - 8:20 pm	Frederic Jaouen (Centre National de la Recherche Scientifique, France) "Metal-Nitrogen-Carbon Materials: Improved Understanding of Their Lifetime Reached with Model Catalysts Characterised with Advanced Off- and On-Line Techniques"
8:20 pm - 8:35 pm	Discussion
8:35 pm - 9:15 pm	Dustin Banham (Ballard Power Systems, Canada) "Importance of Catalyst Layer Design in Commercializing the World's First Non-Precious Metal Catalyst-Based PEMFC Stack"
9:15 pm - 9:30 pm	Discussion

Tuesday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Ionomers and Next Generation Membranes Discussion Leader: Thomas Zawodzinski (University of Tennessee, Knoxville, USA)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:55 am	Michael Guiver (Tianjin University, China) "Trialing Some New Approaches for Fuel Cell Hydrocarbon Membranes"
9:55 am - 10:10 am	Discussion
10:10 am - 10:30 am	Coffee Break
10:30 am - 11:15 am	Takeshi Hirai (Asahi Glass Company, Japan) "Perfluorinated Block Copolymer Electrolytes for PEFCs"
11:15 am - 11:30 am	Discussion

11:30 am - 12:15 pm	Erik Kjeang (Simon Fraser University, Canada) "Understanding Membrane Degradation by 3D and 4D X-Ray Imaging"
12:15 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Young Investigator Presentations Discussion Leader: Roswitha Zeis (Karlsruhe Institute of Technology, Germany)
7:30 pm - 7:35 pm	Introduction by Discussion Leader
7:35 pm - 8:00 pm	Aliaksandr Bandarenka (Technical University of Munich, Germany) "Identification of Active Catalytic Centers for Fuel Cell Electrocatalysts"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:40 pm	David Zitoun (Bar-Ilan University, Israel) "Scale-up Synthesis of Octahedral Pt Shell ORR Catalysts for PEMFCs"
8:40 pm - 8:50 pm	Discussion
8:50 pm - 9:20 pm	Iryna Zenyuk (Tufts University, USA) "Understanding Morphology and Transport in Fuel Cells Porous Components with X-Ray Techniques"
9:20 pm - 9:30 pm	Discussion

Wednesday

7:30 am - 8:30 am	Breakfast
8:30 am - 9:00 am	Group Photo
9:00 am - 12:30 pm	Techniques and Diagnostics Discussion Leader: Anthony Kucernak (Imperial College London, United Kingdom)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:55 am	Karl Mayrhofer (Forschungszentrum Juelich, Germany) "Investigations of Fundamental Electrocatalyst Stability"
9:55 am - 10:10 am	Discussion
10:10 am - 10:30 am	Coffee Break
10:30 am - 11:15 am	Renate Hiesgen (Esslingen University of Applied Sciences, Germany) "Insights by Material-Sensitive and Conductive AFM Close to Operation Conditions: From Ionomer Film Formation to Properties of Membranes and Fuel Cell Electrodes"
11:15 am - 11:30 am	Discussion
11:30 am - 12:15 pm	Deborah Myers (Argonne National Laboratory, USA) "X-Ray Scattering, Spectroscopy and Tomography Characterization of PEFC Cathode Catalysts, Inks and Electrodes"
12:15 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time

4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:00 pm - 7:30 pm	Business Meeting *Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair*
7:30 pm - 9:30 pm	Scale-up and Manufacture / Late Breaking Topics Discussion Leader: Madeleine Odgaard (EWII Fuel Cells, Denmark)
7:30 pm - 7:40 pm	Introduction by Discussion Leader
7:40 pm - 8:20 pm	Mike Petch (Johnson Matthey, United Kingdom) "MEA Manufacturing: Addressing the Scale-up Challenge"
8:20 pm - 8:30 pm	Discussion
8:30 pm - 8:50 pm	William Mustain (University of South Carolina, USA) "Catalysts, Membranes, CO_2 and Water: Requirements and Pathways for High Performing AEMFCs"
8:50 pm - 9:00 pm	Discussion
9:00 pm - 9:20 pm	Steven DeCaluwe (Colorado School of Mines, USA) "Thickness Effects on Hydration and Anisotropic Transport in Thin-Film Nafion: Moving Toward Process-Structure-Property Relationships in PEMFC Catalyst Layers"
9:20 pm - 9:30 pm	Discussion

Thursday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Catalyst Layer Structure and Transport and New Insights on Ionomer Thin Films Discussion Leader: Jon Pharoah (Queen's University, Canada)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:55 am	Yu Seung Kim (Los Alamos National Laboratory, USA) "Interfacial Behavior of Polymer Electrolytes in Fuel Cell Electrodes"
9:55 am - 10:10 am	Discussion
10:10 am - 10:30 am	Coffee Break
10:30 am - 11:15 am	Kensaku Kodama (Toyota Central R&D Labs, Inc., Japan) "Effect of the Molecular Structure of Ionomers on the Oxygen Reduction Reaction on the Surface of Pt"
11:15 am - 11:30 am	Discussion
11:30 am - 12:15 pm	Anusorn Kongkanand (General Motors, USA) "Proton and Oxygen Transports in Catalyst Mesopores"
12:15 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner

7:30 pm - 9:30 pm	Green Hydrogen Discussion Leader: Bryan Pivovar (National Renewable Energy Laboratory, USA)
7:30 pm - 7:40 pm	Introduction by Discussion Leader
7:40 pm - 8:20 pm	Thomas Schmidt (Paul Scherrer Institute, Switzerland) "The Oxygen Evolution Reaction: From the Catalyst to the Cell Level"
8:20 pm - 8:35 pm	Discussion
8:35 pm - 9:15 pm	Katherine Ayers (Proton OnSite, USA) "Renewable Hydrogen via Water Splitting: Outlook and Opportunities Beyond Just Transportation"
9:15 pm - 9:30 pm	Discussion

Friday

7:30 am - 8:30 am	Breakfast
9:00 am	Departure

Contributors

Fuel Cell

Gordon Research Seminar

Understanding First Principles and Exploring New Innovations in Fuel Cells

July 28 - 29, 2018

Chairs- John J. Slack and Tasleem Muzaffar
Bryant University
1150 Douglas Pike
Smithfield, RI, US

Conference Program

Saturday

2:00 pm - 5:00 pm	Arrival and Check-in
3:30 pm - 3:45 pm	Introductory Comments by GRC Site Staff / Welcome from the GRS Chair
3:45 pm - 4:30 pm	Keynote Session: Perspectives from Industry *What does the future of fuel cells in industry look like? What directions are commercial fuel cells going? What does industry want in an employee? This session will attempt to answer these questions and promote thoughtful discussion about this topic.* Discussion Leader: Jan-Patrick Melchior (Oak Ridge National Laboratory, USA)
3:45 pm - 4:15 pm	Cenk Gumeci (Nissan Technical Center North America, USA) "Perspective from Industry"
4:15 pm - 4:30 pm	Discussion
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Development of Fuel Cells *From higher activity catalysts to higher conductivity polymers to water management and more.* Discussion Leaders: Sadia Kabir (National Renewable Energy Laboratory, USA) and Ahmad El-Kharouf (University of Birmingham, United Kingdom)
7:30 pm - 7:45 pm	Daniel Göhl (Max-Planck-Institut für Eisenforschung, Germany) "Limits and Challenges of Core-Shell Nanoparticles During Electrocatalysis"
7:45 pm - 7:55 pm	Discussion
7:55 pm - 8:10 pm	Sebastian Oener (University of Oregon, USA) "Rational Design and Fabrication of Catalyst Local Environment Using Inorganic and Organic Frameworks"
8:10 pm - 8:20 pm	Discussion
8:20 pm - 8:35 pm	Shuk Han Chan (U.S. Department of Energy, USA) "Manufacturing Research and Development Activities in the U.S. Department of Energy's Fuel Cell Technologies Program"
8:35 pm - 8:40 pm	Discussion
8:40 pm - 8:55 pm	Luigi Osmieri (National Renewable Energy Laboratory, USA) "*Operando* Determination of Oxygen Reduction Reaction Kinetics on PGM-Free Electrocatalysts in a PEFC"
8:55 pm - 9:05 pm	Discussion

9:05 pm - 9:20 pm	Michael Gerhardt (Lawrence Berkeley National Laboratory, USA) "Modeling Water Management and Carbon-Dioxide Contamination Effects in Anion-Exchange Membrane Fuel Cells"
9:20 pm - 9:30 pm	Discussion

Sunday

7:30 am - 8:30 am	Breakfast
9:00 am - 11:00 am	The Future of Fuel Cells *Looking toward the future and the research being done right now that will affect the science done later.* Discussion Leader: Aslan Kosakian (University of Alberta, Canada)
9:00 am - 9:15 am	Nelly Cantillo Cuello (University of Tennessee, USA) "Study of the Microstructure and Properties of a Proton Exchange Membrane Fuel Cell Catalyst Layer"
9:15 am - 9:25 am	Discussion
9:25 am - 9:40 am	Nivedita Kulkarni (University College London, United Kingdom) "Structural Characterization and Modeling of the Effect of Non-Uniform Compression on Reactant Transport and Performance of Polymer Electrolyte Membrane Fuel Cells"
9:40 am - 9:50 am	Discussion
9:50 am - 10:05 am	Paulette Loichet (Technical University of Munich, Germany) "Self-Limiting Cu Deposition on Pt by Hydrogen Displacement: First Steps Towards a Scalable Nanoparticle Synthesis"
10:05 am - 10:15 am	Discussion
10:15 am - 10:30 am	Mayank Sabharwal (University of Alberta, Canada) "Impact of Local Saturation on Gas Transport and Performance of Fuel Cell Electrodes"
10:30 am - 10:40 am	Discussion
10:40 am - 10:55 am	Anne-Christine Scherzer (Fraunhofer Institute for Solar Energy Systems ISE, Germany) "Simulation and Experimental Analysis of Potential-Induced Degradation Processes in the Cathode Catalyst Layer of PEM Fuel Cells"
10:55 am - 11:00 am	Discussion
11:00 am - 12:30 pm	Poster Session *Coffee will be served in the poster area from 11:00 am - 11:30 am*
12:30 pm - 1:30 pm	Lunch
1:30 pm - 2:30 pm	Mentorship Component: Entrepreneurship with Fuel Cells *Learn from individuals who have started or are starting their own businesses based on PEM or AEM fuel cell technologies.* Discussion Leader: Tim-Patrick Fellinger (Technical University of Munich, Germany)
1:30 pm - 2:15 pm	Benjamin Britton (Ionomr, Canada) "Perspective as an Entrepreneur "
2:15 pm - 2:30 pm	Discussion
2:30 pm - 3:00 pm	Evaluation Period *Fill in GRS Evaluation Forms*

3:00 pm Seminar Concludes

Contributors

Fuel Cells GRC – Registration List

Name	Organization	Participation
Abbou, Sofyane	Michigan Tech University	Poster Presenter
Achrai, Ben	PO-CELLTECH	Attendee
Akyalcin, Levent	Anadolu University	Poster Presenter
Alfoari, Karrar T	Michigar Technological Uni.	Poster Presenter
Allen, Jeffrey S	Michigan Technological University	Poster Presenter
Andersen, Shuang Ma	University of Southern Denmark	Attendee
Angelopoulos, Anastasios P	University of Cincinnati	Poster Presenter
Artyushkova, Kateryna	University of New Mexico	Discussion Leader
Asset, Tristan F	University of New Mexico	Poster Presenter
Atanassov, Plamen	University of New Mexico	Attendee
Atwa, Marwa	University of Calgary	Poster Presenter
Ayers, Katherine E	Proton OnSite	Speaker
Bae, Chulsung	Rensselaer Polytechnic Institute	Poster Presenter
Baker, Andrew M	LANL	Poster Presenter
Bandarenka, Aliaksandr	Technical University of Munich	Speaker
Banham, Dustin W	Ballard Power Systems	Speaker
Berg, David	W.L. Gore & Associates	Attendee
Braaten, Jonathan P	Carnegie Mellon University	Poster Presenter
Brandon, Simon	Technion	Poster Presenter
Britton, Benjamin	Ionomr	Poster Presenter
Brunnengräber, Kai	Technische Universität Darmstadt	Poster Presenter
Buchi, Felix N.	Paul Scherrer Institut	Poster Presenter
Cantillo Cuello, Nelly M	University of Tennessee	Poster Presenter
Chamier, Jessica	HySA Catalysis	Poster Presenter
Chan, Shuk Han	U.S. Department of Energy	Attendee
Chen, Zhongwei	University of Waterloo	Speaker
Chen, Yechuan	University of New Mexico	Poster Presenter
Chuang, Po-Ya	University of California, Merced	Poster Presenter
Chuy, Carmen	OverDrive Fuel Cell Engineering	Attendee
Cooper, Kevin R	Scribner Associates, Inc.	Attendee
Cullen, David A	Oak Ridge National Laboratory	Attendee
DeCaluwe, Steven C	Colorado School of Mines	Speaker
Dekel, Dario R.	Technion - Israel Institute of Technology	Attendee
Dixit, Marm B	Vanderbilt University	Poster Presenter
Donzel, Nicolas	CNRS - Université Montpellier	Poster Presenter
Eickes, Christian	Greenerity GmbH	Attendee
El-Kharouf, Ahmad	University of Birmingham	Poster Presenter
Eller, Jens	Paul Scherrer Institut	Poster Presenter
Escribano, Sylvie	CEA	Poster Presenter
Fellinger, Tim-Patrick	Technical University of Munich	Poster Presenter
Friedrich, Andreas K	German Aerospace Center (DLR)	Attendee
García-Salaberri, Pablo A.	Universidad Carlos III de Madrid	Poster Presenter
Gasteiger, Hubert A	Technical University of Munich	Discussion Leader
Gerhardt, Michael R	Lawrence Berkeley National Laboratory	Poster Presenter
Ghoshal, Shraboni	Alliance for Sustainable Energy, LLC, National	

	Renewable Energy Laboratory	Poster Presenter
Gildemeister, Anselm M	Federal Office of Bundeswehr Equipment and Technology	Attendee
Göhl, Daniel	Max-Planck-Institut für Eisenforschung	Poster Presenter
Gonen, Shmuel Z	Bar Ilan university	Poster Presenter
Gostick, Jeff	University of Waterloo	Poster Presenter
Greeley, Jeff	Purdue University	Speaker
Groos, Ulf	Fraunhofer ISE	Poster Presenter
Guiver, Michael D.	Tianjin University	Speaker
Gumeci, Cenk	Nissan Technical Center North America	Attendee
Handl, Michael	University of Applied Sciences Esslingen	Poster Presenter
Hatzell, Kelsey B	Vanderbilt University	Poster Presenter
Hellstrom, Sondra L	Robert Bosch LLC	Attendee
Herein, Daniel	Umicore AG & Co KG	Attendee
Hiesgen, Renate	Esslingen University of Applied Sciences	Speaker
Higgins, Drew C	Stanford University, SLAC National Accelerator Laboratory	Poster Presenter
Hinds, Gareth	National Physical Laboratory	Attendee
Hirai, Takeshi	Asahi Glass Company	Speaker
Hou, Zhongjun	Sunrise Power Co., Ltd.	Attendee
Hu, Leiming	Carnegie Mellon University	Poster Presenter
Hubner, Gerold Wolf	Volkswagen AG	Attendee
Ikehata, Yuta	Toyota Motor North America	Attendee
Jankovic, Jasna	University of Connecticut	Poster Presenter
Jaouen, Frederic	Centre National de la Recherche Scientifique	Speaker
Jia, Hongfei	Toyota Research Institute of North America	Attendee
Johnston, Christina M	Bosch Research and Technology Center	Attendee
Jones, Deborah J	CNRS - University of Montpellier	Chair
Kabir, Sadia	National Renewable Energy Laboratory	Poster Presenter
Kallo, Josef	German Aerospace Center (DLR)	Speaker
Kaplan, Dima	NRCN/Tel Aviv University	Poster Presenter
Karan, Kunal	University of Calgary	Chair
Khandavalli, Sunilkumar	National Renewable Energy Lab	Poster Presenter
Kim, Yu Seung	Los Alamos National Laboratory	Speaker
King, Laurie A	Stanford University	Poster Presenter
Kishimoto, Takeaki	Nisshinbo Holdings Inc.	Poster Presenter
Kjeang, Erik	Simon Fraser University	Speaker
Klose, Carolin	University of Freiburg - IMTEK	Poster Presenter
Knights, Shanna D	Ballard Power Systems	Vice Chair
Kodama, Kensaku	Toyota Central R&D Labs, Inc.	Speaker
Komini Babu, Siddharth	Los Alamos National Laboratory	Poster Presenter
Kongkanand, Anusorn	General Motors	Speaker
Korzeniewski, Carol	Texas Tech University	Poster Presenter
Kosakian, Aslan	University of Alberta	Poster Presenter
Kreider, Melissa E	Stanford University	Poster Presenter
Kreuer, Klaus-Dieter	Max Planck Institute for Solid State Research	Poster Presenter
Kucernak, Anthony	Imperial College London	Discussion Leader

Kulkarni, Nivedita N	University College London	Poster Presenter
Kuppan, Saravanan	Robert Bosch LLC	Attendee
Kushner, Douglas I	Lawrence Berkeley National Laboratory	Poster Presenter
Labata, Marc Francis M.	University of California, Merced	Poster Presenter
Lai, Yeh-Hung	General Motors Company	Poster Presenter
Lee, Dong Un (Daniel)	Stanford University	Poster Presenter
Lee, Albert S	Los Alamos National Laboratory, MPA-11	Poster Presenter
Lehre, Thilo	Robert Bosch GmbH	Attendee
Leonard, Emily	Tufts University	Poster Presenter
Li, Guangfu	University of California, Merced	Poster Presenter
Li, Xianglin	University of Kansas	Attendee
Litster, Shawn E	Carnegie Mellon University	Attendee
Liu, Yuanchao	Michigan State University	Poster Presenter
Liu, Jiangjin	Tufts University	Poster Presenter
Loichet, Paulette A	Technical University of Munich	Poster Presenter
Lv, Haifeng	Argonne National Lab	Poster Presenter
Mabuchi, Takuya	Tohoku University	Poster Presenter
Mailoa, Jonathan	Bosch	Attendee
Martinez, Alejandro	Johnson Matthey Fuel Cells	Poster Presenter
Mauger, Scott A	National Renewable Energy Laboratory	Poster Presenter
Maurya, Sandipkumar	Los Alamos National Laboratory	Poster Presenter
Mayrhofer, Karl JJ	Forschungszentrum Juelich	Speaker
McQuarters, Ashley B	General Motors	Poster Presenter
Melchior, Jan-Patrick	Oak Ridge National Laboratory	Poster Presenter
Menga, Davide	Chair of Technical Electrochemistry, Technische Universität München	Poster Presenter
Millet, Pierre	Paris-Sud University	Poster Presenter
Mojica, Felipe E	University of California, Merced	Poster Presenter
More, Karren	Oak Ridge National Laboratory	Attendee
Moriau, Leonard	National Institute of Chemistry, Slovenia	Poster Presenter
Morin, Arnaud	CEA	Poster Presenter
Mosdale, Renaut	SYMBIO	Attendee
Msomi, Phumlani	University of Johannesburg	Poster Presenter
Mueller, Jonathan E	Volkswagen AG	Attendee
Mukerjee, Sanjeev	Northeastern University	Attendee
Mustain, William E	University of South Carolina	Speaker
Muzaffar, Tasleem	SIMON FRASER UNIVERSITY	Poster Presenter
Myers, Deborah J	Argonne National Laboratory	Speaker
Nagai, Tomoyuki	Toyota Motor North America	Poster Presenter
Nagao, Yuki	Japan Advanced Institute of Science and Technology	Poster Presenter
Niroumand, Amir M	Greenlight Innovation	Poster Presenter
Nonoyama, Nobuaki	Toyota Motor Corporation	Attendee
Odgaard, Madeleine	EWII Fuel Cells	Discussion Leader
Oener, Sebastian Z	University of Oregon	Poster Presenter
Ogawa, Shohei	Carnegie Mellon University	Poster Presenter
Okaya, Kazuki	Tanaka Kikinzoku Kogyo K.K.	Poster Presenter

Osmieri, Luigi	National Renewable Energy Laboratory	Poster Presenter
Ota, Kenichiro	Yokohama National University	Poster Presenter
Ozhukil Kollath, Vinayaraj	University of Calgary	Poster Presenter
Pant, Lalit M	Lawrence Berkeley National Laboratory	Poster Presenter
Park, Andrew M	Chemours	Attendee
Park, Eun Joo	Los Alamos National Laboratory	Poster Presenter
Park, Gu-Gon	Korea Institute of Energy Research	Poster Presenter
Petch, Mike I	Johnson Matthey	Speaker
Pharoah, Jon	Queen's University	Discussion Leader
Pivovar, Bryan S	National Renewable Energy Laboratory	Discussion Leader
Pylypenko, Svitlana	Colorado School of Mines	Poster Presenter
Qi, Zhen	Lawrence Livermore National Laboratory	Poster Presenter
Rahman, Md Azimur	University of California, Merced	Poster Presenter
Rebholz, Sarah K	Safran	Attendee
Reichl, Annett	Umicore AG & Co. KG	Attendee
Resende, William	BMW Group	Speaker
Reshetenko, Tatyana V	Hawaii Natural Energy Institute	Poster Presenter
Rice, Cynthia A	Tennessee Tech University	Poster Presenter
Rojas-Carbonell, Santiago	University of Delaware	Poster Presenter
Saatkamp, Torben	Max Planck Institute for Solid State Research	Poster Presenter
Sabarirajan, Dinesh C	Tufts University	Poster Presenter
Sabharwal, Mayank	University of Alberta	Poster Presenter
Saha, Prantik	Tufts University	Poster Presenter
Sanchez, Daniel G	Deutsches Zentrum für Luft- und Raumfahrt Institute of Technical Thermodynamics Electrochemica	Poster Presenter
Sarker, Mrittunjoy	University of California, Merced	Poster Presenter
Scherzer, Anne-Christine	Fraunhofer Institute for Solar Energy Systems ISE	Poster Presenter
Schibli, Eric M.	Simon Fraser University	Poster Presenter
Schmidt, Thomas Justus	Paul Scherrer Institute	Speaker
Schneider, Jesse	Nikola Motor	Speaker
Secanell, Marc	University of Alberta	Vice Chair
Shibata, Masao	Toyota Central R&D Labs.	Poster Presenter
Shrivastava, Udit N	University of Calgary	Poster Presenter
Shum, Andrew D	Tufts University	Poster Presenter
Shviro, Meital	Forschungszentrum Jülich GmbH	Poster Presenter
Singh, Yadvinder	Simon Fraser University	Poster Presenter
Slack, John J	Vanderbilt University	Poster Presenter
Smeltz, Andrew D	De Nora	Attendee
Soloveichik, Grigorii L	ARPA-E	Attendee
Speder, Jozsef	Greenerity GmbH	Attendee
Spendelow, Jacob S	Los Alamos National Laboratory	Poster Presenter
Spooner, Jacob	Simon Fraser University	Poster Presenter
Stamenkovic, Vojislav	Argonne National Laboratory	Attendee
Strasser, Peter	Technical University of Berlin	Speaker
Sui, Pang-Chieh	Wuhan University of Technology	Poster Presenter
Tajiri, Kazuya	Michigan Technological University	Poster Presenter
Talukdar, Krishan	German Aerospace Center, DLR	Poster Presenter

Tesfaye, Meron	University of California Berkley	Poster Presenter
Uddin, M. Aman	Carnegie Mellon University	Poster Presenter
Valdes Lopez, Velia F	University College London	Poster Presenter
Vanska, Klaus	ABB Marine & Ports	Speaker
Vollbrecht, Alexander	Volkswagen Group Research Powertrain & Energie Systems Fuel Cell	Attendee
Wang, Li	German Aerospace Center (DLR)	Poster Presenter
Wang, Chunmei	Chemical Engineering and Fuel Cell Department	Attendee
Wang, Rongyue	Argonne National Lab	Poster Presenter
Williams, Stefan T. D.	University of Tennessee, Knoxville	Attendee
Xiong, Yin	Cornell University	Poster Presenter
Xu, Shicheng	Stanford University	Poster Presenter
Yang, Donglei	University of California, Merced	Poster Presenter
Yang, Yao	Cornell University	Poster Presenter
Yarlagadda, Venkata Raviteja	University of Michigan / General Motors	Poster Presenter
Zaton, Marta A	CNRS - University of Montpellier	Poster Presenter
Zawodzinski, Thomas A	University of Tennessee, Knoxville	Discussion Leader
Zeis, Roswitha	Karlsruhe Institute of Technology	Discussion Leader
Zenyuk, Iryna	Tufts University	Speaker
Zhao, Yun	University of Delaware	Poster Presenter
Zitoun, David	Bar-Ilan University	Speaker

Fuel Cells GRS – Registration List

Name	Organization	Participation
Abbou, Sofyane	Michigan Tech University	Poster Presenter
Alfoari, Karrar T	Michigar Technological Uni.	Poster Presenter
Asset, Tristan F	University of New Mexico	Poster Presenter
Atwa, Marwa	University of Calgary	Poster Presenter
Braaten, Jonathan P	Carnegie Mellon University	Poster Presenter
Britton, Benjamin	Ionomr	Speaker
Cantillo Cuello, Nelly M	University of Tennessee	Speaker
Chan, Shuk Han	U.S. Department of Energy	Speaker
Chen, Yechuan	University of New Mexico	Poster Presenter
Dixit, Marm B	Vanderbilt University	Poster Presenter
El-Kharouf, Ahmad	University of Birmingham	Discussion Leader
Fellinger, Tim-Patrick	Technical University of Munich	Discussion Leader
Gerhardt, Michael R	Lawrence Berkeley National Laboratory	Speaker
Göhl, Daniel	Max-Planck-Institut für Eisenforschung	Speaker
Gumeci, Cenk	Nissan Technical Center North America	Speaker
Higgins, Drew C	Stanford University, SLAC National Accelerator Laboratory	Poster Presenter
Hu, Leiming	Carnegie Mellon University	Poster Presenter
Kabir, Sadia	National Renewable Energy Laboratory	Discussion Leader
Khandavalli, Sunilkumar	National Renewable Energy Lab	Poster Presenter
King, Laurie A	Stanford University	Poster Presenter
Klose, Carolin	University of Freiburg - IMTEK	Poster Presenter
Kosakian, Aslan	University of Alberta	Discussion Leader
Kreider, Melissa E	Stanford University	Poster Presenter
Kulkarni, Nivedita N	University College London	Speaker
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Menga, Davide	Chair of Technical Electrochemistry, Technische Universität München	Poster Presenter
Muzaffar, Tasleem	Simon Fraser Univeristy	Chair
Oener, Sebastian Z	University of Oregon	Speaker
Ogawa, Shohei	Carnegie Mellon University	Poster Presenter
Osmieri, Luigi	National Renewable Energy Laboratory	Speaker
Pant, Lalit M	Lawrence Berkeley National Laboratory	Poster Presenter
Rojas-Carbonell, Santiago	University of Delaware	Poster Presenter
Saatkamp, Torben	Max Planck Institute for Solid State Research	Poster Presenter
Sabharwal, Mayank	University of Alberta	Speaker
Scherzer, Anne-Christine	Fraunhofer Institute for Solar Energy Systems ISE	Speaker
Schibli, Eric M.	Simon Fraser University	Poster Presenter
Schneider, Jesse	Nikola Motor	Poster Presenter
Shibata, Masao	Toyota Central R&D Labs.	Poster Presenter
Slack, John J	Vanderbilt University	Chair

Spooner, Jacob	Simon Fraser University	Poster Presenter
Valdes Lopez, Velia F	University College London	Poster Presenter
Williams, Stefan T. D.	University of Tennessee, Knoxville	Attendee
Xiong, Yin	Cornell University	Poster Presenter
Xu, Shicheng	Stanford University	Poster Presenter
Yang, Yao	Cornell University	Poster Presenter